

Remarks

Claims 1-6 and 8-13 are pending in the application. No amendments have been made to the claims.

The claims were rejected under 35 USC §103(a) as unpatentable over Montgomery ('908) or Bockhorst *et al.* in combination with Grossman and Close *et al.* or Lincklaen-Arriens *et al.* It is submitted that the Examiner's reasoning in maintaining the rejection of claim 1 as obvious in view of Montgomery ('908) or Bockhorst *et al.* when taken with Grossman and Close *et al.* or Lincklaen-Arriens *et al.* is erroneous.

On page 8, 2nd paragraph of the action, the Examiner states: "As the problem of electrical signal blockage due to shut-in valves was in the prior art, an artisan faced with this problem would turn to modes of transmission which are not blocked by the valve to form a bridge." Applicant disagrees. In the prior art, previous solutions to this problem have involved providing continuity of hydraulic or electrical paths past the obstruction. However, those solutions have practical difficulties, as discussed in the application. The Examiner concludes that it would have been obvious to employ acoustic signal data transmission to "form the bridge," but has provided no reasoning to support that conclusion.

The invention resides in identifying the limited use of sonic data transmission as providing a solution to the specific problem of providing a signal path to by-pass an obstruction. The very idea of "forming a bridge" using a different mode of data transmission is non-obvious in itself, in the light of the prior art, and that the selection of sonic data transmission through the drill string to form such a bridge is also non-obvious in the absence of any relevant teaching in the prior art. The prior art only suggests the use of sonic data transmission for "long range" data transmission as an alternative to electrical or hydraulic transmission. It does not suggest the limited use of sonic transmission for the specific, limited purpose of by-passing an obstruction. Accordingly, it is submitted that the combination of features defined in claim is inventive and non-obvious.

The Examiner's comment that it is "common knowledge that an obstructed drill string will severely attenuate acoustic signals travelling therein" supports applicant's contention that the use of sonic data transmission as defined in claim is non-obvious. If it is indeed common knowledge that an obstructed drill string will severely attenuate acoustic signals travelling

therein, the person of ordinary skill, in the light of such common knowledge, would clearly reject sonic transmission as providing a solution to the problem of transmitting data past an obstruction. That is, the answer to the question posed by the Examiner must be "No". The mere fact that acoustic data transmission in different contexts is known from the prior art does not establish that the use of such a transmission method in the particular circumstances and in the particular way defined in the present claim 1 must be obvious. Rather, the applicant's discovery that sonic data transmission can be used over a short transmission path from one side of an obstruction to the other must be non-obvious if it is contrary to the supposed common general knowledge as asserted by the Examiner.

In the paragraph bridging pages 5 and 6 of the action, the Examiner has further asserted that signalling over a relatively short distance would clearly provide less noise, greater signal amplitude, and improved signal recognition. However, he has not provided any reasoning to show that it would be obvious that sonic transmission over a short distance could serve any useful function. The prior art relating to sonic data transmission seeks only to provide long range data transmission, and is silent as to sonic transmission over short ranges.

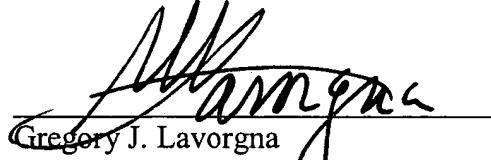
There is a non-obvious inventive step in applicant's recognition that sonic transmission can usefully be employed over a short distance for the specific purpose of by-passing an obstruction.

Finally, the second sentence of the final paragraph of the action is not understood, nor is its relevance to the present issues. Applicant therefore does not agree that anything in that sentence forms any basis for rejecting the claims.

On the basis of the foregoing comments, it is submitted that claim 1 is clearly non-obvious in the light of the prior art. Since the remaining claims depend from claim 1, those claims are also non-obvious.

It is respectfully submitted that all pending claims are in condition for allowance, and Applicant respectfully requests that allowance be granted at the earliest date possible. Should the Examiner have any questions or comments regarding Applicant's amendments or response, the Examiner is asked to contact Applicant's undersigned representative.

Respectfully submitted,



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